

## REMARKS

### Introductory Comments

Claims 1-13, 46, and 47 are pending in the present application. No claims have been canceled, claims 1, 2, 5, 6, 46, and 47 have been amended, and no claims have been added, so claims 1-13, 46, and 47 remain for consideration upon entry of the present Amendment. The claims have been amended as explained in the Remarks section. No new matter has been introduced by these amendments. Reconsideration and allowance of the claims is respectfully requested in view of the following amendments and remarks.

### Claim Amendments

Claim 1 has been amended to spatially separate the main clauses of the claim. Claim 1 has been further amended to add the limitation, “wherein the aqueous polymer solution consists of water and a polymer selected from the group consisting of vinyl addition and condensation polymers having anionic, non-ionic, or amphoteric charge characteristics with a charge substitution range varying from 0 to about 90%”. Corresponding amendments have been made to independent claims 46 and 47. Support for the added limitation can be found, at least, on page 10, lines 17-19 of the application as filed.

Claim 2 has been amended in the first line, after the words “the polymer” to insert the words “of the aqueous polymer solution”. Support for this amendment can be found in claim 1 as filed.

Claim 5 has been amended in the second line to insert the word “a” before the word “surfactant”. Claim 5 has also been amended in the fourth line to insert a comma after “quaternary salts”.

Claim 6 has been amended to depend from claim 5 rather than claim 1.

Applicants are not conceding in this application that the amended claims would not have been patentable without the current amendments. The present claim

amendments are intended only to facilitate expeditious prosecution of the allowable subject matter. Applicants respectfully reserve the right to present and prosecute the original versions of currently amended claims in one or more continuing applications.

Priority Claim

The Office Action states,

This application is not entitled to the benefit of the prior-filed provisional application 60/434213 because the instant application has no inventor or inventors in common with those named in the prior-filed provisional application as required by 37 CFR 1.78(a)(4) (also see MPEP 201.11).

Applicant is required to delete the reference to the prior-filed application.

12/05/2007 Office Action, page 2, second and third paragraphs.

Applicants respectfully assert that overlapping inventorship exists between the provisional and present nonprovisional application by virtue of the previously filed correction of inventorship for the provisional application. Applicants are submitting herewith a copy of a “Correction of Inventorship” for U.S. Provisional Application Serial No. 60/434,213 filed with the Office on December 17, 2003 by attorney Diderico van Eyl. This document adds seven inventors to the provisional application. These seven added inventors include the six inventors of the present nonprovisional application. So, there is no lack of overlapping inventorship and no reason to deny Applicants the benefit of the provisional application. Accordingly, Applicants respectfully request the reconsideration and withdrawal of the requirement to delete the reference to the prior-filed provisional application.

Declaration

The Office Action states that “[t]he oath or declaration submitted 11/12/2004 is defective” because it “recites the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56(a), rather than 37 CFR 1.56”. 12/05/2007 Office Action, page 2, last two paragraphs. A new oath or

declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date was required. 12/05/2007 Office Action, page 2, next-to-last paragraph.

Applicants are submitting herewith a replacement Declaration and Power of Attorney identifying this application by application number and filing date and reciting the duty to disclose to the Office All information known to the person to be material to patentability as defined in 37 C.F.R. § 1.56.

In view of the fact that the replacement Declaration and Power of Attorney does not include a priority claim, Applicants are submitting herewith a replacement Application Data Sheet to maintain their priority claims to the prior-filed PCT application and U.S. provisional application.

Information Disclosure Statement

The Office Action states,

The information disclosure statement filed 6/22/2005 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it does not include either an English language translation or a concise explanation of the relevance of the Other Prior Art Document “Zandersons J. G., et al., ‘Gelatinized unmodified starch-stabilized alkenyl succinic anhydride emulsion paper sizing’,” which is in the Russian language. The source and date of the document are also indeterminable.

12/05/2007 Office Action, page 3, first paragraph.

Applicants are submitting herewith a supplemental Information Disclosure Statement listing and providing a CAS abstract for the Zandersons article, including its complete source and date information. Applicants have requested a complete translation of the article and will submit the translation to the Office as soon as it is received.

Claim Objection

The Office Action states, “Claim 5 is objected to because of the following informalities: in line 4, a comma should be inserted after the word “salts”. Appropriate correction is required.” 12/05/2007 Office Action, page 3, third paragraph.

Applicants have currently amended claim 5 in the fourth line to insert a comma after the word “salts”. Accordingly, Applicants respectfully request the reconsideration and withdrawal of the objection to claim 5.

Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 2, 6 and 46 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. 12/05/2007 Office Action, page 4, first paragraph.

With respect to claim 2, the Office Action states that it “recites “the polymer” in Claim 1, but fails to specify whether the reference polymer is the polymer in which the alkenyl succinic anhydride (ASA) is suspended or the second component water soluble polymer, Thus making the claim indefinite.” 12/05/2007 Office Action, page 4, second paragraph. Claim 2 is currently amended in the first line, after the words “the polymer” to insert the words “of the aqueous polymer solution”, thereby making clear that the claim 2, line 1 reference to “the polymer” is a reference to the polymer in which the ASA is suspended.

With respect to claim 6, the Office Action states that there is insufficient antecedent basis for the claim 6 reference to “the surfactant component”. 12/05/2007 Office Action, page 4, fourth paragraph. Claim 6 is currently amended to depend from claim 5 rather than claim 1, thereby providing antecedent basis for “the surfactant component” in claim 6.

With respect to claim 46, the Office Action states that “[i]t is not clear how an aqueous emulsion, which contains a polymer and ASA particles suspended in water, is

further suspended in water". 12/05/2007, Office Action, page 4, third paragraph. Claim 46 is currently amended to delete the phrase "suspended in water".

For all of the above reasons, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 2, 6, and 46 under 35 U.S.C. § 112, second paragraph.

Derivation Rejections

Claims 1-13, 46 and 47 stand rejected under 35 U.S.C. § 102(f) because the applicants allegedly did not invent the claimed subject matter. 12/05/2007 Office Action, page 4, last paragraph. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

Applicants respectfully submit that the derivation rejection is moot given the corrected inventorship of the provisional application, as discussed above in the context of the priority claim. Accordingly, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 1-13, 46 and 47 under 35 U.S.C. § 102(f).

Anticipation or Obviousness Rejections over Frolich + Nasu

Claims 1-7, 9-11 and 46-47 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over U.S. Patent No. 5,969,011 to Frolich et al (hereinafter, "Frolich") as evidenced by U.S. Patent No. 5,756,646 to Nasu et al (hereinafter, "Nasu"). 12/05/2007 Office Action, page 6, third paragraph. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

Frolich generally describes an aqueous dispersion containing a cellulose-reactive sizing agent and a dispersant system comprising a low molecular weight cationic organic compound having a molecular weight less than 10,000 and an anionic stabilizer, as well as the preparation and use of the aqueous dispersion in the production of paper. Frolich abstract.

Nasu generally describes an agent for improving surface quality of paper comprising an acrylamide resin composition obtained by hydrolyzing an acrylamide resin which is obtained by (co)polymerizing in the presence of a urea compound an acrylamide monomer, or an acrylamide monomer and an acrylonitrile monomer, or an acrylamide monomer and a cross-linking agent, or an acrylamide monomer and an acrylonitrile monomer and a cross-linking agent. Nasu abstract.

Applicants respectfully assert that claims 1-7, 9-11 and 46-47 are neither anticipated by nor obvious over Frolich in view of Nasu because Frolich's required cationic organic compound is excluded by the rejected claims.

Anticipation requires that all of the limitations of the claim be found within a single prior art reference. *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991). For a rejection under section 102 to be proper, the cited reference must clearly and unequivocally disclose the claimed subject matter without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference. *In re Arkley*, 172 USPQ 524, 526 (C.C.P.A. 1972). For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Establishing a *prima facie* case of obviousness requires that all limitations of the claim be taught or suggested by the prior art. *See, e.g.*, MPEP 2143.03; *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003); *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974).

Independent claims 1, 46, and 47 have been amended to include the limitation, "wherein the aqueous polymer solution consists of water and a polymer selected from the group consisting of vinyl addition and condensation polymers having anionic, non-ionic, or amphoteric charge characteristics with a charge substitution range varying from 0 to about 90%". This limitation excludes from the aqueous polymer solution any components other than water and the recited polymers. Therefore, claims 1, 46, and 47 exclude Frolich's required cationic organic compound, and Frolich does not teach or suggest the quoted limitation.

Applicants respectfully note that although Nasu is included in the statement of the rejection, the reason for its citation is not explained in the accompanying remarks. In any case, the citation of Nasu as a secondary reference would not modify Frolich's requirement for a cationic organic compound. Frolich and Nasu therefore collectively fail to teach or suggest the aqueous polymer solution of Applicants' independent claims. Accordingly, independent claims 1, 46, and 47 are neither anticipated by Frolich nor obvious over Frolich as evidenced by Nasu. Given that claims 2-7 and 9-11 each depend ultimately from and further limit claim 1, they too are neither anticipated by Frolich nor obvious over Frolich as evidenced by Nasu. Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 1-7, 9-11, 46, and 47 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as obvious over Frolich as evidenced by Nasu.

Anticipation or Obviousness Rejections over Novak

Claims 1-6, 9-11 and 46-47 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over U.S. Patent No. 4,606,773 to Novak (hereinafter, "Novak"). 12/05/2007 Office Action, page 8, second paragraph. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

Novak generally describes emulsion of alkenyl succinic anhydride sizing agents are prepared using a cationic water-soluble polymer and a cationic starch as an emulsifier.

Applicants respectfully assert that claims 1-6, 9-11 and 46-47 are neither anticipated by nor obvious over Novak because Novak's required cationic water-soluble polymer and cationic starch are both excluded by the rejected claims. As explained above, Applicants' independent claims 1, 46, and 47 each include the limitation "wherein the aqueous polymer solution consists of water and a polymer selected from the group consisting of vinyl addition and condensation polymers having anionic, non-ionic, or amphoteric charge characteristics with a charge substitution range varying from 0 to

about 90%”. This limitation excludes from the aqueous polymer solution any components other than water and the recited polymers. Therefore, claims 1, 46, and 47 exclude Novak’s required cationic water-soluble polymer and cationic starch, and Novak does not teach or suggest the quoted limitation. Accordingly, independent claims 1, 46, and 47 are neither anticipated by nor obvious over Novak. Given that claims 2-6 and 9-11 each depend ultimately from and further limit claim 1, they too are neither anticipated by nor obvious over Novak. Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 1-6, 9-11 and 46-47 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as obvious over Novak.

Anticipation or Obviousness Rejections over Wasser

Claims 1-3, 7, 9-12 and 46-47 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over International Publication No. WO 97/05330 of Wasser (hereinafter, “Wasser”), which appears to have been inadvertently cited as “WO-07/05330”. 12/05/2007 Office Action, page 10, second full paragraph. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

Wasser generally describes the use of synthetic cationic polymers as promoters for alkenyl succinic anhydride sizing. Wasser abstract (emphasis added).

Applicants respectfully assert that claims 1-3, 7, 9-12 and 46-47 are neither anticipated by nor obvious over Wasser because Wasser’s required synthetic cationic polymers are excluded by the rejected claims. As explained above, Applicants’ independent claims 1, 46, and 47 each include the limitation “wherein the aqueous polymer solution consists of water and a polymer selected from the group consisting of vinyl addition and condensation polymers having anionic, non-ionic, or amphoteric charge characteristics with a charge substitution range varying from 0 to about 90%”. This limitation excludes from the aqueous polymer solution any components other than

water and the recited polymers. Therefore, claims 1, 46, and 47 exclude Wasser's required synthetic cationic polymers, and Wasser does not teach or suggest the quoted limitation. Accordingly, independent claims 1, 46, and 47 are neither anticipated by nor obvious over Wasser. Given that claims 2, 3, 7, and 9-12 each depend ultimately from and further limit claim 1, they too are neither anticipated by nor obvious over Wasser. Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 1-3, 7, 9-12 and 46-47 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as obvious over Wasser.

Obviousness Rejection over (Frolich, Novak, or Wasser) + Chunyu

Claim 8 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Frolich, Novak, or Wasser as evidenced by Chunyu, "Alkenyl Succinic Anhydrides (ASA): a Neutral Sizing Agent", *China Pulp & Paper*, 2002, no. 3, pages 61-64 (hereinafter, "Chunyu"). 12/05/2007 Office Action, page 11, last paragraph 4. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

Chunyu generally describes the use of alkenyl succinic anhydrides as neutral sizing agents. Chunyu is cited for its discussion of the hydrolysis of ASA. 12/05/2007 Office Action, page 12, first paragraph.

Applicants respectfully assert that claim 8 is not obvious over Frolich, Novak, or Wasser as evidenced by Chunyu because the required cationic materials of the primary references are excluded by claim 8. Claim 8 depends directly from claim 1 and therefore incorporates the claim 1 limitation that "the aqueous polymer solution consists of water and a polymer selected from the group consisting of vinyl addition and condensation polymers having anionic, non-ionic, or amphoteric charge characteristics". Claim 8 therefore excludes Frolich's required cationic organic compound, Novak's required cationic water-soluble polymer and cationic starch, and Wasser's required synthetic cationic polymers. Chunyu, which is cited for its discussion of ASA hydrolysis, does not remedy the failure of the primary references to teach or suggest the quoted limitation.

Therefore, a prima facie case of obviousness against claim 8 has not been established, and claim 8 is patentable over the cited references. Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claim 8 under 35 U.S.C. § 103(a) over Frolich, Novak, or Wasser as evidenced by Chunyu.

Obviousness Rejection over Frolich

Claims 10 and 11 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Frolich. 12/05/2007 Office Action, page 12, second paragraph. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

Frolich is discussed above.

Applicants respectfully assert that claims 10 and 11 are patentable over Frolich because Frolich's required cationic organic compound is excluded from claims 10 and 11. Claims 10 and 11 each depend directly from claim 1 and therefore incorporate the claim 1 limitation that "the aqueous polymer solution consists of water and a polymer selected from the group consisting of vinyl addition and condensation polymers having anionic, non-ionic, or amphoteric charge characteristics". Claims 10 and 11 therefore exclude Frolich's required cationic organic compound. Accordingly, a prima facie case of obviousness against claims 10 and 11 has not been established, and claims 10 and 11 are patentable over the cited references. Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 10 and 11 under 35 U.S.C. § 103(a) over Frolich.

Provisional Nonstatutory Double Patenting Rejections

Claims 1-2, 4-13, 46 and 47 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-12, 44 and 45 of copending Application No. 10/534,202. 12/05/2007 Office Action, page 13, third full paragraph.

Claims 1, 6-13, 46 and 47 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 4-11, 30 and 33 of copending Application No. 10/533,702. 12/05/2007 Office Action, page 14, first paragraph.

Applicants thank the Examiner for pointing out the potential obviousness-type double patenting issue between the claims of the present application and those of copending Application Nos. 10/534,202 and 10/533,702. Applicants respectfully note that a first action on the merits has not yet been mailed for Application No. 10/534,202, and that Applicants recently amended the claims of Application No. 10/533,702 in an Amendment filed May 21, 2008. In view of the possibility that claims in the cited applications or the present application will be further amended before allowance, Applicants will defer responding to this provisional rejection until claims in the reference applications are allowed, claims in the present application are otherwise allowable, and it is determined whether this provisional rejection becomes an actual rejection.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' Attorneys.

Respectfully submitted,

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